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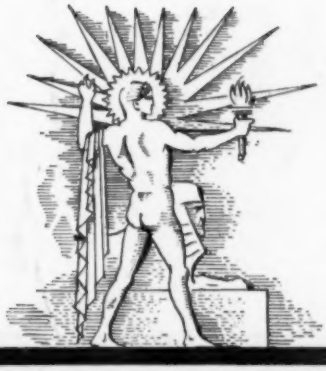
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



May 30, 1942

For All-American Rope

See Page 340

A SCIENCE SERVICE PUBLICATION

Do You Know?

The *muskox* is a true remnant of the Ice Age.

Moose are the largest members of the deer family.

Gem cutting began several thousand years before Christ.

All mammals can *swim,* many expertly, but not all like water.

The Army believes it will need a total of 23,658 *physicians* this year.

In ancient times *gems* were believed to have magic or medicinal powers.

Sheep will be sheared practically to order this year to provide woolen flying suits for U. S. airmen.

Hippocrates and his pupils believed that the *arteries* transported air to keep the internal fires burning.

More than 100 ways in which *wood* can take the place of tinplate or steel have been listed by the U. S. Forest Service.

Honey or corn syrup may be substituted for as much as half the *sugar* in canning, according to the U. S. Department of Agriculture.

Saccharin, a coal tar product with a very sweet taste, cannot be used in canning because it becomes bitter when heated.

Scientifically, the *Pacific* is the least known of the oceans.

In growing old, men lose their recent *memory* first, remote memory last.

A new *bee food*—part pollen collected by bees and part soybean flour—is being tested by the U. S. Department of Agriculture at Beltsville, Md.

The iron and steel used in one *tractor* would harness 65 mule teams.

The *anise* plant is a native of Egypt, but is cultivated in all warm climates.

Thompson and Lindsay Islands in the South Atlantic are reported vanished by the British Admiralty—they had been charted since 1825.

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Most articles which appear in* SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

SCIENCE NEWS LETTER

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NUTRITION

Wheat Germ Could Substitute For Cheese or Beefsteak

Experiments on Rats Indicate That Wheat Germ Protein Is as Good for Maintaining Growth as Is Casein

WHEAT germ may become the war diet substitute for cheese, beefsteak and the Sunday roast, it appears from experiments reported by E. L. Love and C. G. Harrel, of the Pillsbury Research Laboratory, Minneapolis, at the meeting of the American Association of Cereal Chemists in Chicago.

Wheat germ protein, they found in diet experiments with laboratory rats, is as good as or better than casein, chief protein of milk and cheese, for maintaining growth. They conclude that it "can be used in the human dietary as a supplementary protein equal in value to casein or other animal proteins."

Animal proteins, from meat, fish, poultry, milk or cheese, have heretofore been considered better for human nourishment than proteins from plant sources such as vegetables and grains. But, as the Pillsbury researchers point out, the "impending shortage of animal proteins" throughout the world due to the war makes the finding of an adequate protein from other sources particularly important.

The wheat germ protein, however, cannot be obtained from ordinary bread, because this part of the wheat is discarded when flour is bolted. Bread made from unbolted, stone or water ground flour would contain the wheat germ and its protein. The germ of the wheat is discarded in flour milling because it also contains an oil which rapidly turns rancid.

Science News Letter, May 30, 1942

Enrichment at 20 Cents

IMPROVED nutrition for the "uninformed and the unprogressive as well as to others at the trivial cost of 20 cents per capita per year" can automatically be attained through enrichment of bread and flour with the two vitamins, thiamin and niacin, and the mineral, iron, Dr. R. R. Williams, Bell Telephone Laboratory researcher famed for discovering a way to produce thiamin synthetically, declared.

Thiamin is vitamin B_1, also known as the morale vitamin. Niacin is the new name scientists have given to the pellagra-preventing vitamin.

Something more than a third and less than a half of the nation's bread and flour supply is now being enriched, thanks to the cooperation of the milling and baking industries, Dr. Williams stated. He listed obstacles to further advance as follows:

"1. The highly competitive situation in low priced flours such as are used by low-income people has so far made such flours unavailable in enriched form. This is a definite challenge to the flour industry.

"2. The public appreciation of the values of enrichment is still slight so that bakers find it difficult to recoup the costs of bread enrichment. This is a challenge to the nutritionists of the country.

"3. Delay in the promulgation of final regulations for the enriched products retards progress."

Science News Letter, May 30, 1942

MEDICINE

Sound Waves Are Used To Improve Sulfa Drug

USE of sound waves to improve sulfa drug treatment of wounds, infections and burns is announced by Dr. Leslie A. Chambers, Dr. T. N. Harris, Dr. Francis Schumann and Dr. L. Kraeer Ferguson, of Philadelphia (*Journal, American Medical Association,* May 23).

The sonic vibration is used to break up sulfathiazole crystals into microscopic bits which when suspended in water or salt solution gives a preparation with the consistency of thick cream. This preparation can be injected through fine gauge hypodermic needles, which is usually not possible with neutral suspensions of ordinary sulfa drug crystals because

PIONEER

This painting by Dean Cornwell, depicting "The Dawn of Abdominal Surgery," and portraying one of the earliest abdominal operations, performed by Dr. Ephraim McDowell, of Danville, Ky., in 1809, will be unveiled before the American Medical Association on June 8. It is fourth in a series on "Pioneers of American Medicine." Others honor William Beaumont, Sir William Osler, and Drs. Walter Reed and Carlos Finlay.

of their larger size and irregular shape.

The microcrystals of sulfathiazole can get to work faster at their job of stopping germ invasion because they dissolve more rapidly and do not clump or cake.

Favorable results with the use of these microcrystals are reported in 30 wounds resulting from injury, 57 infections such as abscesses and carbuncles, in burns and in 19 patients who had abdominal operations that might have been complicated by peritonitis.

Science News Letter, May 30, 1942

Cures 'Flu Meningitis

FIVE children under four years of age suffering from usually fatal influenzal meningitis were promptly and dramatically cured by sulfadiazine treatment, Dr. Wallace Sako, Dr. Chester A. Stewart and Dr. Joel Fleet, of New Orleans, report in the same issue of the *Journal* of the A.M.A.

Two others getting the treatment died, one apparently as a result of stopping the treatment too soon and the subsequent development of chickenpox, and the other because of cisternal puncture to remove spinal fluid.

Science News Letter, May 30, 1942

AGRICULTURE

Hemp Being Grown in U. S. As War Cuts Off Imports

See Front Cover

WHEN they hang Adolf Hitler on a sour-apple tree, there'll be a good rope of American-grown hemp ready for the job. After a lapse of a couple of generations, hemp is again being cultivated in the United States, to make good the cutting off of our Asiatic import sources for cordage. You can't run a Navy, not even a modern steel-and-steam Navy, without hemp rope. The Army needs a lot, too, and war-essential industries also have their hemp demands.

The U. S. Department of Agriculture has bought and distributed about 3,000 bushels of hemp seed, enough to plant some 350,000 acres. Most of the planting will be done in Kentucky, where hemp cultivation started in 1775 and has survived on a small scale ever since. Hemp will also be grown in Wisconsin, Minnesota and Illinois. The acreage may be expanded into other states in 1943.

While the hemp seed was in the warehouses it was guarded by soldiers. Hemp is the source of very troublesome narcotic drugs.

Science News Letter, May 30, 1942

PHYSICS

Liquid Flow Through Pipe Assumes Five Different Forms

Three Kinds Previously Observed Declared Not Enough; Other Types Occur When Velocity Is Very Low or High

THE FLOW of oil, gasoline and other liquids through a pipe assumes five different forms as the velocity is increased, instead of only three as generally supposed, according to a communication to the British journal *Nature* from Alfred H. Nissan, Department of Oil Engineering and Refining of Birmingham University.

The three kinds of flow previously observed are the smooth, the critical and the turbulent. These are assumed in succession as the velocity of flow is increased. For smooth flow the frictional loss is low; for turbulent flow it is high. In the short critical range between, the loss changes rapidly from a low to a high rate of increase with velocity. The flow here is partly smooth, partly turbulent.

These three stages can be illustrated by water flowing from a tap, by turning the tap on gradually.

Mr. Nissan, however, declares this classification to be an over-simplification. He finds two other distinct types which might be called the sub-smooth and the super-turbulent.

When the velocity is very low, the frictional loss increases with the velocity at a lower rate than for smooth flow. This sub-smooth type occurs when oil, gas or water seeps through porous layers in the earth.

When the velocity is very high, certain sound waves are produced which further increase losses and make a fourth type.

The usual methods of calculating flow fail in these cases, he says. They give results too low or too high, which may sometimes be a serious error.

Science News Letter, May 30, 1942

CRUSHING THE STRAW

After the hemp straw comes from the drier, it is fed into a hemp break which thoroughly crushes it. Then the hemp is cleaned by beating and brushing in a hemp scutcher. This process, which removes the woody, pithy portion, called hurds and sends the fiber out clean, is shown in the picture on the front cover of this week's SCIENCE NEWS LETTER. Both photographs are official pictures of the U. S. Department of Agriculture by Forsythe.

SPINNING

This spinning machine spins loose strands of American hemp into fine yarns. U.S.D.A. photograph by Forsythe.

PSYCHIATRY

Hypnotized Boys and Girls Can Give Meaning of Dreams

Although Knowing Nothing of Freud, Normal College Students Were Able Also To Translate Famous Myths

DREAMS have a language all their own, which can be translated by practically any normal person while he is under hypnosis, the American Psychiatric Association meeting in Boston was told by Dr. Leslie H. Farber and Dr. Charles Fisher of Washington, D. C.

These studies confirm Freud's theories of dream symbolism, but prove that you do not have to be a psychoanalyst to translate them. These research psychiatrists chose a group of healthy young college students who not only produced dreams to order when they were hypnotized, but translated them too. The validity of the answers was then checked in a series of control experiments, described in detail by Dr. Farber and Dr. Fisher.

The psychoanalytic idea of a "universal unconscious language" has been taken out of the realm of controversy by these experiments, and made available for scientific study.

These college students who had never read Freud translated other people's dreams as readily as their own in most cases giving the classical Freudian interpretations which have aroused a storm of controversy ever since Freud published his "Interpretation of Dreams."

It was stressed by the psychiatrists that these experimental subjects were not neurotics, but normal, average college students who are totally unable to translate dreams either before or after hypnosis.

Also confirming psychoanalytic speculations were the translations obtained of myths—such as Moses in the Bulrushes and the Garden of Eden story—which tallied with Freudian theory. Dreams of psychoanalytic patients were also translated, and under hypnosis these students were able to make sense out of the "unintelligible" speech of mental hospital patients, reported to them by the hypnotist.

Regarding the controversial question of the sexual nature of Freudian symbol interpretation—which at first sight appears to be completely confirmed by these hypnotic experiments—Dr. Farber and Dr. Fisher suggested another explanation.

The language of the unconscious, they said, as revealed in dreams, myths and artistic creations, is much more primitive and limited than waking language, since it remains comparatively unchanged since early childhood.

In dreams, complicated adult experiences have to be expressed by a relatively small number of concepts, or symbols, many of which refer to the bodily functions most important in childhood. They also stressed the fact that dreams have many meanings, on different levels, and that it is impossible to "interpret" a dream without studying all the circumstances which produced it. Their experiments, they said, were an attempt to study unconscious language, through dreams, by isolating the various factors which operate in dream production.

This technique of producing experimental dreams provides a scientific method for verifying psychoanalytic theory, as well as for general study of the unconscious, including the formation of bodily symptoms in neurosis.

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MEDICINE—PSYCHIATRY

Marihuana Found Useful In Certain Mental Ills

MARIHUANA, often blamed for crime and insanity among its users who smoke it in "reefers," "muggles" or "goof-butts," was reported as a drug of potentially "great usefulness in the treatment of drug addicts" and patients suffering from mental depressions and other nervous disorders.

This new and favorable picture of marihuana appeared in a report by Dr. Samuel Allentuck, of New York City, to the American Psychiatric Association meeting in Boston.

Dr. Allentuck used the drug experimentally in cases of mental depression and nervous disorders characterized by listlessness and lack of appetite. The drug was found to increase the appetite, and induce calmness and relaxation in those previously greatly agitated.

Effect of the drug on 77 volunteers from New York's prison population had previously been studied by a special research group appointed by Mayor LaGuardia. These studies showed marihuana was something like alcohol in that it did not create a "new" personality but, by lowering inhibitions, accentuated all traits, both harmful and beneficial.

The aftermath of prolonged use of the drug strongly resembles an alcoholic hangover, it was reported.

Used to combat withdrawal symptoms of narcotic drug addicts who were being taken off their drug, marihuana lessened the severity of the withdrawal symptoms or eliminated them sooner.

"The patient was in a better frame of mind, his spirits elevated, his physical condition was rapidly rehabilitated and he expressed a wish to return to his occupation sooner," Dr. Allentuck reported. He concluded: "There is no evidence to suggest that the continued use of marihuana is a stepping stone to the use of opiates. Prolonged use of the drug does not lead to physical, mental or moral degeneration, nor have we observed any permanent deleterious effects from its continued use. Quite the contrary, marihuana and its derivatives and allied synthetics have potentially valuable therapeutic applications which merit future investigations."

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PSYCHIATRY

Navy Psychiatrists Are Saving Manpower for Industry

Men Who Would Be Likely To Break Mentally Under Extraordinary Strains of Battle Are Placed in Jobs

HOW Navy psychiatrists are saving money and precious manpower for both the Navy and local communities by returning to suitable jobs in civilian life those men likely to break mentally under the unusually severe strains of sea warfare was disclosed by Commander Uno H. Helgesson before a joint meeting of the American Psychiatric Association and the American Psychopathological Association in Boston.

Very prompt psychiatric first aid treatment for battle casualties was also urged. He suggested mobile first-aid posts which could be sent right to the scene of battle.

The Navy is not the cold, impersonal machine that military organizations are commonly thought to be, Commander Helgesson said. Consideration has been given to the effects on the individual and community morale of sending a man home after he has been sworn in.

So the Red Cross was requested to furnish psychiatric social workers who act as liaison between the Navy and the community and family. Through local Red Cross chapters, psychiatric social workers at the Navy training stations have been able to get the rejected men into their old jobs or into new ones better suited to them, or they have put them into the hands of competent clinics or welfare organizations for such assistance as they need.

It is explained to the rejected man that as a civilian worker he has a function as important in this war as that of a sailor.

Those rejected include the "weak sisters," the "gripes" and those who resent authority and the "sick bay addicts" who can rarely be counted on in an emergency, as well as men with epilepsy or the early symptoms of actual mental disease. If such men were not removed from duty early in their service, it would deprive war industries of workers and at the same time be a great loss to the Navy.

"The economic loss from this kind of casualty, although it probably would run into the millions in a year's time, is not so serious as the loss in manpower and efficiency," Commander Helgesson said.

"We have no unlimited supply of commissioned officers and petty officers to train our new recruits. All the money in the world can not buy a ready-made experienced commissioned officer or petty officer. Economy of manpower is, therefore, particularly essential among officer and petty officer personnel."

Mobile psychiatric first aid posts were urged by Commander Helgesson to care for psychiatric battle casualties. These acute mental conditions following combat are of quite a different nature from peace-time neuroses, Commander Helgesson explained. They are mental breakdowns in the face of difficulties which are not the common experience of man. But it is a well-known fact that the majority of these combat casualties can be returned to useful civilian occupations if treated early enough.

The trouble is that naval casualties occur in widely scattered areas and a long time, sometimes weeks, may elapse before they reach a naval hospital.

Among British casualties and also American, there are some who go into a deep stupor like that in some cases of the mental disease schizophrenia. But in the case of the battle casualties, it has been found that prompt treatment results in quick and relatively complete improvement. This peculiar form of psychiatric battle casualty seems to be more common in this war than in any before.

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AERONAUTICS

Army Can Use at Least 24,000 Model Airplanes

A REQUEST for thousands of airplane models for the Interceptor Command of the U. S. Army has been transmitted to Science Clubs of America by Brig. Gen. J. K. Cannon, commanding the Army's First Interceptor Command. These models will be used in training airplane spotters. At least 24,000 will be needed.

Science Clubs of America members are being asked to continue to make seven models right through the summer. After the models are completed they should be sent directly to Science Clubs of America headquarters at 310 Fifth Avenue, New York, N. Y., where they will be picked up by the Army and distributed to the more than 8,000 observation posts scattered from Maine to Florida along the Atlantic seacoast. Science Clubs of America are sponsored by Science Service.

Models for the Interceptor Command may be made from the much more easily worked balsa wood, instead of pine, which is required for Navy models.

The Army will need only seven planes. These may be built on the scale of 1 to 72 or may be enlarged to a scale of 1 to 36. The Navy plans, now in the hands of schools, may be used for the details. Each unit in the Army program will consist of seven planes. One single motored plane of the P-40 type, three bi-motor ships of the B-26, P-39 and DC-3 types, two multi-motors of the B-17 and B-24 types and the Curtiss biplane SBC-4.

Throughout the entire nation high

schools have been engaged in bulding model airplanes on a scale of 1 to 72 expressly for the U. S. Navy. The Navy wanted 50,000 models of 50 different airplanes. Soon this activity will be interrupted by summer vacations. There is no need, however, for science clubs to stop their work and experiments simply because summer is here and some schools will be closed.

Many students have had experience in building airplane models for the Navy. These boys and girls can give instructions to those who had had but limited experience in the field.

Schools are being asked not to discard models which did not come up to the rigid specifications prescribed by the Navy. Instead, some of these models which may be slightly off on one or two dimensions will be acceptable to the Army for use by the Interceptor Command.

For the time being only those models enumerated will be accepted. However, other single, two-motored and multi-motored ships may be found useful later; so don't throw good models away.

Brig. Gen. Cannon has also asked the Junior Aviators, an organization sponsored by the Scripps-Howard newspapers, Boys' Clubs of America and other organizations as well as schools to cooperate in the Army program.

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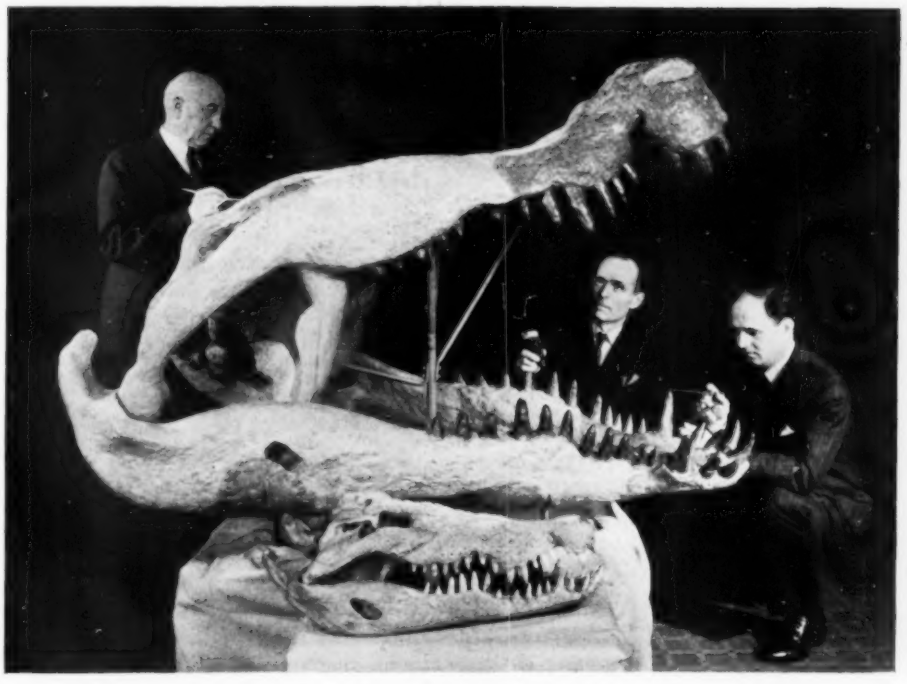

BIG JAWS

Restoration of the skull of a huge crocodile that once snapped these jaws in the Big Bend country of Texas—about 70 million years ago. Working on the restoration are (left to right) Dr. Barnum Brown, who discovered the fossil remains, Roland T. Bird, who assembled them, and Dr. Erich Schlaikjer, who helped excavate them. In the foreground, for comparison, is the skull of a present-day Asiatic marine crocodile. The restoration is at the American Museum of Natural History.

PALEONTOLOGY

Fossil Skull in Museum Is of "Awful Alligator"

MEET PHOBOSUCHUS. That's from the Greek for "terrible crocodile" or "awful alligator."

The name is well merited. Phobosuchus is a six-foot-two-inch fossil skull representing a genus of giant reptiles that swam along the shores of shallow lakes and wallowed through swamps, in what is now the Big Bend region of Texas, during Cretaceous time, about 70 million years ago. The crushed fossil fragments, pieced together to make a restored skull, have just been placed on display at the American Museum of Natural History. Alongside is the skull of the largest known living crocodile species—a seagoing monster from the coasts of India, with a total length of 33 feet. It is dwarfed by comparison with the Phobosuchus specimen.

The skull was found a couple of years ago as a mass of crushed fragments, by Dr. Barnum Brown, curator of paleontology at the Museum. It has taken the intervening time to unscramble and reassemble the Chinese puzzle they presented, and to intercalate missing parts. The completed specimen is six feet two inches from base to snout-tip, three feet wide at the widest part, and bears a formidable array of pointed teeth, some of them as much as six inches long. Comparative measurements indicate that the over-all length of the monster was not far from 45 feet.

The "awful alligator" shared his swamps and lakes with dinosaurs.

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GENERAL SCIENCE

10,000 High School Seniors In Science Talent Search

OVER 10,000 copies of the examination for the Science Talent Search, being conducted by Science Clubs of America, sponsored by Science Service, have been distributed to 1,734 secondary schools throughout the nation.

Entries in this contest for 40 trips to Washington where 20 Westinghouse scholarships will be awarded are being received until June 1.

Designed to bring to attention boys and girls who are potential leaders in scientific research of the future, the Science Talent Search is using a twelve-page two-hour examination administered by school authorities as part of the selection technique. The contestants, who are all seniors ready to enter college, also are writing essays on "How Science Can Help Win the War." Teachers provide evaluation and scholarship data.

One feature of the Science Talent Search is that girls make their own opportunities in the contest. The trips and the scholarships will be allotted to boys and girls in proportion to the number of boys and girls competing.

It is expected that the winners of the Washington trips to be held July 13 to 15, will be announced about June 15.

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MEDICINE

Collapse After Bleeding May Have Cause in Kidney

SHOCK or fatal collapse after severe bleeding may be due in part to exhaustion of a blood-pressure-regulating mechanism in the kidneys, Dr. Eric Ogden, Leo Sapirstein, J. G. Hildebrand and Dr. Ernest W. Page discovered in experiments at the University of California.

If the kidney is deprived of its normal supply of blood, they found, it liberates a chemical, renin, which through a series of chemical reactions in the body raises the blood pressure. These chemical reactions are always at work, it is believed, to maintain normal blood pressure. But the kidney is capable of liberating so much renin, the California scientists found, that it becomes exhausted and can no longer produce this chemical. This might happen in cases of severe bleeding when the kidney is trying to maintain blood pressure balance by rushing new supplies of renin to the blood.

When this strain exhausts the kidney's renin-producing mechanism, low blood pressure and death result.

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MEDICINE

Frequent "Colds" May Be Nasal Allergy to Food

WHEN a baby, or an older child or grownup, for that matter, has one cold after another, a physician should be consulted. The attacks may not be colds but some other condition requiring different kind of treatment. Allergy is one of the conditions that often is mistaken for colds.

"Whenever an infant in the first year of life has one cold after another or never seems free from one cold when another develops, nasal allergy to foods must be strongly considered," Dr. Arthur J. Horesh, of Western Reserve Medical School, recently told a group of child specialists who are members of the American Academy of Pediatrics.

Parents are likely to recognize hay fever itself in an older child, but may not suspect that some of the baby's ailments are allergic. Eczema, for example, may be due to the infant's being allergic to food. Such babies are frequently so sensitive, Dr. Horesh said, that the "mere presence of the offending foods in their immediate environment may produce allergic symptoms of a serious degree."

Food odors and vapors from offending foods, he said, should always be considered as possible sources of the trouble when the allergic condition persists in spite of careful diet and treatment.

"The preasthmatic or preparoxysmal stage of asthma is frequently mistaken for whooping cough," Dr. Horesh said. "These patients have a cough which is violent and paroxysmal in nature and is commonly accompanied by vomiting. Differentiating this cough from pertussis (whooping cough) is difficult. Weeks later asthmatic symptoms develop."

The question of heredity in allergy is still controversial, he observed. When there is allergy in both parents or on both sides of the family, "there is a strong probability," in Dr. Horesh's opinion, that the baby may develop an allergy. But it is not necessary to take a defeatist attitude about the situation. Much can be done to prevent the development of allergic symptoms or to lessen their severity. Such babies should be fed with great care, Dr. Horesh advised, and "dust-free" bedrooms should be provided. Pets and too many stuffed toys should be discouraged.

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FORESTRY

Forests to Go to War Taking Over Jobs of Metals

"THE North American forest has gone to war," Henry Schmitz, president of the Society of American Foresters, told the Society. Unprecedented demands upon American forest resources are being made and met.

Of the 1941 cut of lumber, 23 billion board feet, or 73% of the total, went directly or indirectly into the war effort, and the amount is certain to increase as the nation really hits its fighting pace.

Wood is being used not merely for its traditional purposes, but is having to take over many of the tasks of metals drafted for war. Timber trusses replace steel beams in bridges and under roofs, plywood planes appear in the skies, wood-pulp cellulose supplements cotton linters in the manufacture of guncotton and its derivative smokeless powder.

Despite increased cutting necessitated by the war, it is expected that large lumber producers will continue to follow the sound practices they have adopted, of making replacement plantings wherever they remove the forest cover. But cutting of immature, rapidly growing stands will have to be watched.

Science News Letter, May 30, 1942

IN SCIEN

MEDICINE

Registration with FCC of All Diathermy Machines

AS a wartime security measure, all diathermy apparatus in doctors' offices, hospitals and elsewhere, including dealers' stocks, have been ordered registered with the Federal Communications Commission by June 8 in accordance with an order of the Defense Communications Board.

Object of the order is to prevent subversive use of such machines by enemy aliens for radio transmission. Diathermy machines not only look like floor-model radios but actually consist of radio transmitters choked off. They generate radio frequency energy designed for use in generating heat within the body tissues for treatment of various ailments.

Seizure by the FBI of two such machines in Newburgh, N. Y., was reported.

The order for registration of diathermy apparatus does not apply, the FCC emphasized, to sun lamps, infra-red lamps or ultraviolet ray devices long sold by drug and department stores. These do not generate radio frequency energy.

Most of the estimated 100,000 diathermy apparatus are in the hands of professional persons, FCC states, "while an appreciable proportion is owned by individuals for private use. There are some portable models; and of the total, a few are not factory made."

Science News Letter, May 30, 1942

ASTRONOMY

Astronomer Awarded Medal For Perfecting Camera

FOR perfecting the famous Schmidt camera to the point where it virtually quintuples the seeing power of a telescope, and for other contributions to astronomical optics, James G. Baker of Harvard College Observatory has been awarded the Adolph Lomb Medal for 1942 by the Optical Society of America.

The medal, awarded biennially for noteworthy contributions to optics, will be presented at the annual meeting of the Society next October.

Science News Letter, May 30, 1942

NCE FIELDS

PSYCHOLOGY

Use of Womanpower in War Depends on State of Mind

SUCCESSFUL use of womanpower for the war effort demands the aid of psychiatrists, Dr. C. Charles Burlingame, psychiatrist-in-chief of the Neuro-Psychiatric Institute of Hartford Retreat, declared in his annual report.

"In the field of our immediate necessity, which is actual production and useful man power," he stated, "there is probably nothing that women cannot do equally well, if not better than man, if she is in the frame of mind to attempt it. But we must realize that the successful use of womanpower entails the creating of a state of mind, and that is our particular specialty. There is nothing inherently weak in the physical form and structure of woman as compared with men, and any psychiatrist knows that there is nothing inherently weak about her intellectual or emotional drives.

"As a matter of fact, the emotional drive of a woman is as powerful and, under stress, more enduring than that of man.

"But it is necessary to differentiate custom, social practice and education from intellectual and biologic capacities. The introduction of women into business and industry has had a very beneficial effect upon much of the dead wood found among men who were inclined to ride along upon no more secure grounds than the fact that they were men."

Science News Letter, May 30, 1942

PSYCHIATRY

Many Mentally Ill Now Getting Shock Treatment

ABOUT two out of every 100 patients in America's hospitals for the mentally sick are now being given treatment designed to shock them back to sanity. This is done by large doses of insulin or by metrazol or electric shock. Between 1935 and 1941, 23,651 patients were given insulin shock treatment, 36,839 received metrazol, and in the past two years 7,769 were treated by electric shock, Dr. Lawrence Kolb and Dr. Victor Vogel, U. S. Public Health Service, reported to the American Psychiatric Association.

More than 85% of American mental disease hospitals are using some form of this shock treatment, they found from questionnaires answered by 305 hospitals.

In order to learn more about the effectiveness of this type of treatment, physicians of the Pennsylvania Hospital made a thorough study of patients discharged after insulin shock treatment for patients suffering from one type of mental sickness, schizophrenia. Before this type of treatment was used, the recovery rate for this ailment was 10%. Since insulin has been used, over a period of several years, this rate has increased more than five times, Dr. Earl D. Bond, of Philadelphia, reported. Even patients discharged two to five years ago remain well twice as frequently as formerly.

Dr. Bond stated that there was some tendency toward relapse after a period of time, with a tendency to level off at about 40% recovery after two years.

Of those treated between 1936 and 1938, 44% were recovered or improved at the end of treatment, but the proportion dropped to 31%, 42% and 33% at the end of three, four and five years respectively.

Of the 106 cases treated between 1939 and 1942, 63% were recovered or much improved at the end of treatment, and 42% were still well at the end of two years.

Science News Letter, May 30, 1942

SEISMOLOGY

New Ecuadorean Earthquake Centered on Ocean Bottom

NEW EARTHQUAKE shocks felt in Guayaquil, Ecuador, on Friday, May 15, were not centered at the same point as the ones that caused death and wreckage in the city on the previous day, seismologists of the U. S. Coast and Geodetic Survey informed Science Service after examining wired data transmitted from three American observatories. At least one of the disturbances originated under the sea bottom about 100 miles off the coast, in latitude 1.5 degrees north, longitude 81.5 degrees west. It was a fairly strong shock, beginning at 4.38.6 a.m., E.W.T.

Observatories reporting were those of St. Louis University, and of the U. S. Coast and Geodetic Survey at Tucson, Ariz., and San Juan, P.R.

Science News Letter, May 30, 1942

PUBLIC HEALTH

Silver Varnish Makes Glass Self-Sterilizing

SOME of Uncle Sam's spare silver may be put to use in making drinking glasses, bottle caps and similar items self-sterilizing as an aid in the war against germs, it appears from an announcement by Dr. A. Goetz, Dr. R. Tracy and Dr. S. Goetz, of California Institute of Technology. (*Science*, May 22)

A silver-containing "varnish-like, viscous fluid which can be applied by brush, spray or impregnation to various bases like plastics, glass, wood, paper, cloth, etc." has been developed by these scientists.

Surfaces treated with this compound are odorless, tasteless and resistant to wear, weak alkaline and acid action and boiling water. The amount of silver removed from such a surface by the touch of the lips is too small to be poisonous. But tests with germs of the type likely to get on drinking glasses and with molds in cider showed that the compound killed germs quickly and retained its ability to do so over relatively long periods.

The scientists warn that metallic silver itself, for example silver cups or silver-lined cups, cans or bottles, cannot be relied on for germ-killing action because germicidally inert compounds soon form on their surfaces.

Science News Letter, May 30, 1942

ZOOLOGY

Birth to Porcupine Is Rare Blessed Event

A RARE event in animal nursery circles, the birth of a baby porcupine to a captive mother, was reported to the American Society of Mammalogists by Prof. Albert R. Shadle and W. R. Ploss of the University of Buffalo. It is believed to be only the second case on record of the birth of a porcupine in captivity.

The baby came into the world rather well able to take care of itself. Prof. Shadle stated that it had its eyes open and was able to walk. It exhibited the regular porcupine defense reactions, to which real meaning was given by the presence of sharp spines among its long black hair. Its incisor teeth were also well developed.

The prickly infant continued nursing until it was three and one-half months old. As it became better acquainted with its human companions, it grew playful and completely tame.

Science News Letter, May 30, 1942

ASTRONOMY

Stars of the Summer Sky

As June 21 Brings Official End of Spring, Familiar Stars Reappear in Evening Heavens; Vega Is Brightest

By JAMES STOKLEY

As June days bring the warmth of the first of summer, so do the evenings reflect the new season in the stars that have reappeared after months of absence. Indeed, one of the joys of knowing the heavens is to be able to recognize old friends again.

Now, for example, as you look to the south in the evening, you see, near the horizon, a bright star with a distinctly red color. This is Antares, in the figure of Scorpius, the scorpion, and its location is shown on the accompanying maps. (These, by the way, give the appearance of the skies at 11 p.m. war time, at the beginning of June and an hour earlier in the middle of the month.) Only the first part of the scorpion is shown; the rest, a long hook-shaped grouping of stars making the tail, rises later.

Besides Antares, you can see two other first magnitude stars to the south. In the southwest is the constellation Virgo, the virgin, and Spica stands in this. Above Virgo, and to the left, is Bootes, the bear-driver, with brilliant Arcturus.

If there is any doubt as to the identity of Arcturus, a good way to find it is to look in the northwest for the great dipper. The dipper's handle consists of the stars Alkaid, Mizar and Alioth. If you follow their curved line toward the south, it brings you first to Arcturus, and then to Spica.

The brightest star now visible can be seen in the northeast, in Lyra, the lyre—it is Vega. And just below Lyra is Cygnus, the swan, with another first magnitude orb, Deneb. And to the right of Cygnus, directly east, is Aquila, the eagle, with Altair.

Proceeding downwards in the southwest is Leo, the lion; the head made of stars shaped like a reversed question mark, the "sickle." At the end of the sickle's handle is Regulus.

Low in the northwest are several reminders of the splendors of the winter's sky, now shining feebly. Being near the horizon, their light has to pass through a much thicker layer of atmosphere than when we saw them high in the heavens, and their brightness is reduced. Capella, in Auriga, the charioteer, just barely gets on the map. Nearby is Pollux, one of the twins, Gemini. And alongside the twins is the sole remaining evening planet—Mars, which has drawn far away from earth since its close approach of last autumn. Of the second magnitude, its lowness makes it appear of the third.

During June, Mercury, Jupiter and Saturn are all too close to the sun to be seen. Venus, however, is still on view, as a morning star, as she has been for many months. Venus is now in Aries, the ram, and rises about two hours before the sun. Her magnitude is minus 3.5, so there is no difficulty about locating her when she is visible.

Ever since last December, the sun has been moving northward through the sky, and this month, on the 21st, at 9:17 p.m., EWT, it is farthest north. This is the summer solstice and, in the northern hemisphere, it marks the beginning of summer. Also, on that day, the sun rises farthest north of the east point, sets farthest north of the west point, and climbs highest into the sky, all of which means that we then have the longest day and the shortest night. However, for about a week, the sun's northerly position does not change appreciably, so there is very little difference in the length of the day throughout the last half of June.

In the southern hemisphere, the sun is now low in the sky, so our brave troops in Australia will now have winter beginning, and will experience short days and long nights. Let us hope that the latter will help them to raid our enemies!

Though it was nearly a decade ago that it happened, to many of us the sight of Arcturus again recalls the Chicago World's Fair of 1933, when the light from that star was used to turn on the illumination because it supposedly took 40 years—that is, from the time of the Columbian exposition of 1893—to come to the earth.

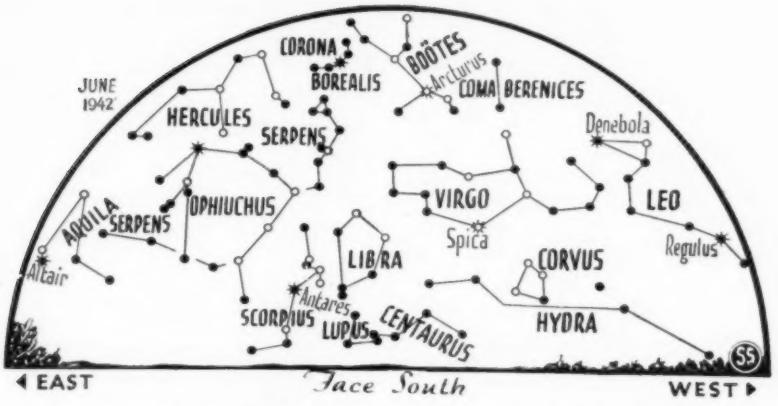
Perhaps now it can be revealed that actually the light of Arcturus does not take 40 years to travel to the earth. According to the best modern value for the distance of this star its light reaches us in a little less than 37½ years. Therefore the light that did the job left the star in the spring of 1896, several years after the Columbian exposition was over!

Perhaps the commonest question which the layman asks the astronomer is, "Can you really tell how far away the stars are?" For the nearer ones, the answer is yes, for the more distant ones we can form a pretty good idea of their distance.

A very simple experiment will show the basic method. Close your right eye, hold a finger up at arm's length and notice the place it seems to stand against the distant background. Now close your left eye and open your right, blinking back and forth from one to the other. As you do, you notice that the finger seems to jump to and fro before the objects in the background.

Now move your finger in to half the distance, and repeat the experiment. This time, the finger seems to move a much greater distance, as measured on the background.

Perhaps you can imagine working out



☼ ✸ ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

some system by which, measuring the distance your finger seems to shift, you could tell how far it was from your eyes, though naturally, if you wanted to find out, it would be much easier to use a tape measure.

We cannot, however, extend a tape measure out to the stars, so this method is practicable for finding their distances. Instead of blinking from one eye to the other, we take photographs of the stars six months apart. In the meantime the earth has moved half way around in its orbit, about 186,000,000 miles away from its former position.

For the nearer stars, this is enough to produce a minute but perceptible difference that can be detected by very careful technique. The shift is called the star's parallax, and is larger the nearer the star.

Though the measures are made from observations taken when the earth is on opposite parts of the orbit, the parallax is expressed as half the actual shift, that is, the difference between the view from the earth, and that from the sun.

No star is close enough to have a parallax as large as a second; and a second is the angle that a penny would seem to have when held up at a distance of 2.45 miles! Alpha Centauri, visible from the southern hemisphere, is closest, with largest parallax — about three-quarters of a second.

The parallax of Arcturus is .087 seconds, and converted into light years (the distance — about 6,000,000,000,000 miles—that light will travel in a year) its distance is 37.46. There is a little uncertainty in this figure, but it is not likely to be as much as 40. Perhaps, for the purpose of a World's Fair, this was close enough!

Celestial Time Table for June

Friday, June 5, 5:26 p.m., Moon in last quarter. Wednesday, June 10, 1:28 a.m., Moon passes Venus. Friday, June 12, 3:55 a.m., Moon passes Saturn. Saturday, June 13, 3:00 p.m., Moon farthest, 252,700 miles; 5:02 p.m., New moon. Wednesday, June 17, 3:06 a.m., Moon passes Mars. Sunday, June 21, 4:44 p.m., Moon in first quarter; 9:17 p.m., Summer commences. Thursday, June 25, 1:00 p.m., Jupiter in line with sun. Saturday, June 27, 9:00 p.m., Moon nearest, 222,000 miles. Sunday, June 28, 8:09 a.m., Full moon. Monday, June 29, 4:00 p.m., Venus passes Uranus.

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ASTRONOMY

Sun's Temperature To Reach 23-Year Low Point in 1945

THE SUN will be at its lowest ebb, thermally speaking, in 1945. This is indicated by data compiled by Smithsonian Institution observers in many parts of the world, and by Dr. Charles G. Abbot, Secretary of the Institution, together with L. B. Aldrich and W. H. Hoover. After that, our planetary system's central furnace will begin to warm up again.

The relation between the sun's radiation and the earth's temperature is not direct, however. Cooling off of the sun might even result indirectly in warming up of certain parts of the earth, by reducing the amount of cloudiness and thereby letting the sun's rays, even though diminished, shine longer on the earth's surface.

Confident prediction of long-range fluctuations in the heat radiated by the sun can be made because of the many thousands of accurate readings of solar heat, taken daily with specially designed, highly sensitive instruments, in observatories at Mt. Montezuma in Chile, Mt. Saint Katherine in the Sinai wilderness, and Table Mountain in the Mojave Desert of California. These have been carefully tabulated and are published, with interpretations, in vol. 6 of the Annals of the Astrophysical Observatory of the Smithsonian Institution, just off the press.

Study of this mass of data shows that there are 14 distinguishable intensity cycles in the sun's radiation. Some of them are of only brief duration, others require years for the swing from high to low. Once every 23 years, all the lows come in together, and that combination low-point is due in 1945.

There seems to be little direct relation between solar radiation per se and the number of sunspots. Sunspots, however, do have their own effect on the earth's weather. They give off vast streams of electrically charged particles that shoot through space. Some of them, entering the earth's atmosphere, serve as nuclei for the condensation of water vapor in the upper atmosphere and thus lead to the increase of cloudiness and of rainfall, which may be entirely independent of heat effects.

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PSYCHIATRY

Self Analysis May Be a Possibility in Psychiatry

PSYCHOANALYSIS for millions instead of millionaires is the possibility opened up by Dr. Karen Horney, New York psychoanalyst, in her new book *Self-Analysis*, (*Reviewed, SNL, this issue*).

Self analysis, within limits, is not only possible but desirable, Dr. Horney concludes. Many people could benefit from psychoanalysis who are now excluded by its almost prohibitive cost in time and money.

Her conclusions suggest that under "favorable conditions" much of the psychoanalytic work can be done by the patient alone, with the analyst serving as trainer and guide rather than constant companion. While this would probably lengthen the total time required, nevertheless many people could afford a few months of intensive analysis and subsequent check-up visits who cannot afford

three or four analytic hours every week for two or three years.

If Dr. Horney's conclusions are substantiated by the observations of other psychoanalysts, they may have an important effect on the practice of psychoanalysis. If self analysis could be used as a supplementary procedure, it would leave the analysts free to treat more patients. This would be particularly valuable in wartime when doctors are scarce and patients plentiful.

One illuminating case of self analysis is reported by Dr. Horney in full detail.

This was a young woman who, after a year of psychoanalysis, continued it by herself during the next two years. By a fairly systematic process of writing down her free associations and examining them later, she managed to free herself from her lifelong habits of submission and dependency, to become a reasonably happy and self-reliant adult, and to develop a previously inhibited capacity for original, creative writing. This seeming miracle was accomplished by an exceptional combination of courage, honesty and a determination to get well. In other words, "conditions were favorable."

Dr. Horney cites several cases in which "occasional self analysis" was helpful for specific problems. A business man of her acquaintance, for instance, was able to cure himself of superficial headaches. While he had never been analyzed, he was familiar with the psychoanalytic viewpoint and had an honest desire to discover the psychological reasons for his headaches. However, Dr. Horney emphasizes that in most cases attempts at self analysis are fruitless without previous psychoanalytic experience.

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VOLCANOLOGY

Bombing Lava Stream Deflects Flow in Harmless Direction

Hardened Crust of Lava Is Often From Six Inches To Two Feet Thick, But Easy to Break With TNT

BOMBING a lava stream to keep it from destroying a city is more or less like blasting a levee to relieve the pressure of a river in flood, except that a lava river builds its own confining embankments.

Lava of the type that Mauna Loa sent to threaten the city of Hilo early this month rapidly forms a crust on its outer surface as it flows, explained Dr. E. S. Shepherd, Carnegie Institution of Washington volcanologist. It not only builds up side walls but even roofs itself over.

This produces some impossible-appearing results, including the ability of the advancing stream to climb slight rises and to ignore side slopes that would deflect a stream of any normal, unconfined liquid.

These confining walls of hardened lava crust are often thick — from six inches to two feet—but the rock is brittle and readily breached by heavy explosive charges. All that is necessary is to drop a few moderately heavy bombs—say 500-pounders—against the side wall at a point where the break will permit the lava to drain down a slope into an unoccupied valley.

It is even possible, Dr. Shepherd said, to deflect such a lava flow with a firehose, by directing the stream on one part of the front to cause the more rapid formation of the confining crust there, permitting the lava to move in the desired direction at another point. The trouble is, however, that there is neither water nor firehose in most of the area ordinarily traversed by Mauna Loa's lava flows.

Bombing volcanoes to provoke eruptions in enemy territory, Dr. Shepherd added, is not a very promising tactic. The biggest air bombs would probably have no effect at all if dropped directly into either Japanese or Hawaiian volcanoes, or indeed into any of the volcanoes in the whole Pacific region.

Only one type of volcano might conceivably have its outburst triggered by an outside explosion. That is one in which the lava column rises close to the very rim of the crater, and then hangs there for several days before beginning active eruption. If bombed at just that time, the outbreak might be speeded. Obviously, such an apportunity comes too seldom, and is never timed just the way an attacker might want it.

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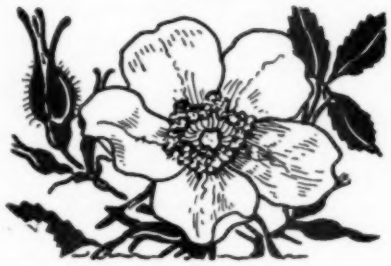
BOTANY

NATURE RAMBLINGS by Frank Thone



Everybody's Flower

ROSES crown the whole round world in June. Roses grow and are high favorites in the cool lands of the North, like Britain and Scandinavia; they thrive even more luxuriantly, and are loved no less, in the warmer lands edging down toward the tropics, like Persia and Spain. Only in Japan are they thrust aside by another flower, the chrysanthemum; and even there the cherry blossom, a near relative of the rose, runs close with second honors.

There seems to be something strongly appealing to a basic human sense of symmetry and rhythm in the crown of five petals that is the basic rose design. This pentamerous pattern repeats itself in all sorts of art designs, from beautifully modeled Chinese bronzes to the great rose windows above the doors of some of Europe's medieval cathedrals. And when Dante wanted a blazing symbol of the striving of innumerable souls toward the throne of God, he conjured up his unforgettable image of the Mystical Rose.

Roses have grown in gardens ever since gardens were first planted. And where gardens are oldest, in the Asiatic lands where civilization had its dim beginnings, roses are most highly cultivated and farthest developed. Most of the rose stocks of our gardens and greenhouses, with their rich array of colors and delicate nuances of shades and tints, their extraordinary development of double petals, are derived from these southern Asiatic species.

This effort toward wide variation in coloring and artificial perfection in form, centered on roses from warm-temperature lands, has given rose lovers their severest problem: lack of hardiness in the finest horticultural varieties. Over wide

stretches of our country, the choicest roses cannot be grown successfully out of doors without the most elaborate kind of protection in winter. And summer drought is often just as unkind to them.

Fortunately, these lands of hard winter do not need to be without their roses. They have wild roses of their own, that are worthy of places in anybody's garden; and there are simpler roses in cultivation, too, that can withstand even a Dakota winter. To many persons, these simpler roses have a stronger esthetic appeal than the richly doubled ones, because their flowers without stamens and carpels being diverted into extra petals, are more natural and normal.

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ASTRONOMY

International Cooperation In Reporting Returning Comet

By CHARLES A. FEDERER, Jr.

Harvard College Observatory

A COMET whose terrestrial history is more significant than its celestial record has returned to our evening skies, bringing with it an example of the results of international coordination among scientists in spite of wartime hates and horrors.

"Pure science knows no international barriers" is a statement made by modern scientists, but often its truth is belied by the serious facts of war.

But the heavens are still free hunting-grounds for all men, and friend and foe alike coordinate their efforts in tracking down its vagabonds, chief of which are the ever-mysterious comets. Latest wanderer into our embroiled part of the solar system is what astronomers prosaically call "periodic comet Grigg-Skjellerup."

According to Dr. Harlow Shapley, director of Harvard College Observatory, the new visitor might well be called the international salesman of the sky, for it represents first New Zealand, then Finland, then England, Belgium, the United States, Sweden, Denmark, and last, but not least, Japan. No two countries figure twice in its history, which begins with its discovery by New Zealander Grigg in 1902.

The latest re-discovery of comet Grigg-Skjellerup has been made by a Japanese astronomer, S. Kanda, our information coming in the form of a cable from Lund, Sweden, where it had been received from Copenhagen, Denmark, which had gotten the news from Japan. (In the past year, Lund has replaced Copenhagen as a clearing house for European and Asiatic information.)

However, Kanda's observation was no news to American astronomers, as the Belgian-American, Dr. George Van Biesbroeck, at the University of Chicago's Yerkes Observatory, had already seen the comet on April 11. Dr. Shapley stated that announcement of this failed to reach Lund, as cablegrams and radiograms cannot go through, and Harvard's regular announcement cards, sent by mail, are apparently still in transit.

Finland enters this comet's history in 1922, when Skjellerup re-discovered it; after that it was seen in 1927 and at five-year intervals. Its return this year was therefore expected, and the position reported by Kanda is almost exactly at that place predicted by English astronomer Cripps (not Sir Stafford).

Amateur astronomers may want to look for comet Grigg-Skjellerup, which Kanda reported to be 10th magnitude on May 9. It is moving rapidly through the southeastern part of Gemini in a northeasterly direction. Predicted position is:

June 2. right ascension 8 hours 53 minutes, declination 25 degrees 15 minutes north.

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PUBLIC HEALTH

Pellagra, Disease of South, Found in the North

PELLAGRA, dread vitamin-deficiency disease once thought limited to the South, has been found in Northern communities, and probably exists throughout the world. One to two out of a hundred patients admitted to two Ohio hospitals had this illness. This is the conclusion of Dr. William Bennett Bean, Dr. Tom Douglas Spies and Dr. Marion A. Blankenhorn of Cincinnati (*Journal, American Medical Association,* April 4).

The three Ohio physicians found 111 victims of pellagra in Lakeside Hospital, Cleveland, and 128 in Cincinnati Gen-

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earl Hospital. Their studies covered the period 1930-35 and 7,186 admissions in the Lakeside Hospital, and also the period 1933-39 and 13,557 admissions in the Cincinnati General Hospital. No re-admission of pellagra cases was included.

Another study, this in far-off India, revealed that 0.65% of all cases admitted to the medical wards of a general hospital in the Province of Madras, suffered from pellagra.

The three American physicians conclude: "This is only an indication of the worldwide prevalence of pellagra. Whenever this disease is sought, it is found among the debilitated patients of large hospitals."

". . . Furthermore, it is at once apparent that the disease is by no means confined to certain regions of the American Southern states but is found in areas where it is not generally thought of as an important problem."

The disease pellagra is characterized by dermatitis, diarrhea, and mental disturbances. It is caused by lack of a vitamin known as nicotinic acid or Niacin. Once thought hopeless, the disease is now effectively cured by treatment with Niacin, and proper diet.

Food fads or ill-advised reducing diets, addiction to alcohol where the victim does not eat properly, are frequently causes of pellagra.

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New Machines And Gadgets

Novel Things for War-Time Living

A match with every cigaret is insured by a recent patent. The object is accomplished by the simple device of having a paper match attached to each cigaret in the process of manufacture. Underlying the match is a strip of igniting material. The lower end of the match is glued to this, and the strip is attached to the end of the cigaret. Both are thus easily detached.

Plastic spacers, each of a different color by which the desired thickness can at once be selected without the making of measurements, will speed up milling machine operations. Being made of plastic, cellulose acetate, they will also save the brass and steel formerly employed.

Old documents can be restored and preserved in the following way. The paper is first immersed in lime water to remove discoloration, dust and grease. Next it is placed in a calcium carbonate solution and dried. Then it is placed between two thin sheets of cellulose acetate foil, covered in turn by sheets of tracing cloth. The whole is then put in a special press where heat and pressure fuse them into practically one sheet which will last indefinitely without deterioration. This method is used at the Maryland Hall of Records.

The guard in the picture is reporting "All's Well" to a central guard station in one of our war factories, protected by an acoustic fence. This fence is all ears. If tampered with anywhere, sounds are heard at the central station and an annunciator indicates where the disturbance took place. Even a dog crawling under the fence sets off the alarm. Although the guard in the picture is talking to a detector, he may send a message from any point along the fence by tapping it out in code.

Bowling is good exercise, but may be a bit too strenuous for some. To relieve the latter, a projector has been invented and patented which starts the ball rolling. You only have to aim it. In another patent, the inventor even provides a loading machine, so that you don't have to handle the balls, personally, at all. It appears the whole game could be played from a wheel chair.

Coffee flakes may be added to your morning menu when peace brings back the blessings of all the coffee you want (and double sugar, too, if you like it). But you will not eat it as a cereal. You will brew your morning beverage with it in the usual way. A patent has just

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1719 N St., N. W. Washington, D. C.

● RADIO

Saturday, June 6, 1:30 p.m., EWT

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Professor Bart J. Bok, of Harvard University, will talk on "Counting Stars."

Tuesday, June 2, 7:30 p.m., EWT

Science Clubs of America programs over WRUL, Boston, on 6.04, 9.70 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in the high schools, throughout the Americas. Have your science group listen in at this time.

been granted on a process of converting moistened green coffee into flat flakes by pressure rolling before roasting. The inventor states that in this form the coffee needs far less drastic roasting than it does in the whole bean condition, and that it has aroma superior to that achieved by present processing methods.

A retractable fire escape ladder is the offering of a recent patent. Built on the principle of the lazy tongs, it can be pulled up or extended by turning a crank. It is intended of course for the lower-most ladder of a fire escape.

Tents can be made more comfortable, in both hot weather and cold, by making them out of a double layer of duck with a filling of rock wool quilted in between, suggests a former Army officer in the first World War. The fabric turns rain and prevents the rock wool from shredding to bits, and the rock wool, already a notable success in house insulation, keeps heat out in summer and warmth in during winter.

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, *1719 N St., N. W., Washington, D. C., and ask for Gadget Bulletin 106.*

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SCIENCE CLUBS OF AMERICA

Sponsored by Science Service

NEWS OF CLUBS

ST. LOUIS, Mo.—Diseases likely to become prevalent during war time is the subject of a group exhibit which has been made by the Agassiz Chapter of the Junior Academy of Science of St. Louis at Soldan High School. Members of this science club have also made individual exhibits which include clay and papier-mache models of hydra and various fungi. Much material has been added to the collections of herbs, legumes, seeds and wools, and experimental work has been conduuted on the growth of plants. Katherine Pfeifer, biology teacher, is sponsor of this club.

KINGSTON, N. Y.—A three-day science exhibit was staged in the science classrooms of the Myron J. Mitchell School, here. The Edison Science Club at this school was host and sponsored the exhibit. Just before Easter the club attended a Science Fair in such large numbers that two large buses were needed to transport the group to the center of activities 50 miles away. Ione Kinkade is sponsor of the club's activities

SIKESTON, Mo.—During the past few months members of the Sikeston Science Society at Sikeston High School, constructed three group projects of which they are justly proud. The first is a stroboscope which can be used to make rapidly rotating objects appear to stand still or move backward. The others are a radio receiver and a portable receiver. This club meets twice a month; conducts assembly programs and stages a science show at the Junior Carnivals. The sponsor is Paul H. Roberts, head of science department.

HAMMOND, Ind.—At least one good enlargement made by a club member will be considered a mark of proficiency in photography by members of the AmPho Club at Oliver B. Morton Junior High School. In the two-section program arranged by members of this club each individual of the photo section learns how to make proper exposures, develop films, make contact prints and blow-ups. How to mix chemicals for developing pictures and how to produce photomontages is also learned by those who delve into photographic activities still further.

The biology section of the club has set up a committee on conservation. Other committees are conducting experiments in heredity; artificial pollination; or supply live material for laboratory observation and classroom work. Both sections of the club have voted to award Science Clubs of America pins for outstanding work in any field of scientific endeavor. Seventeen awards will be made this year. Arthur R. Gibson and Max Stark are the sponsors.

ROCKFORD, Ill.—A committee of three members of the Young Scientific Americans at Roosevelt Junior High School, has been responsible for setting up the experimental demonstrations for a 35-minute period weekly. Naturally, such an activity soon exhausts the supply of effects which could be set up complete within the week and with limited equipment. The members would appreciate suggestions for new experiments suitable for lecture table demonstrations. Melva U. Olson, head of science department, sponsors the activities.

BARKER, N. Y.—Each week a committee of the Science Research Club at Barker Central School records the relative humidity, temperature, barometric readings and wind direction and prognosticates the coming weather. This information is posted for the benefit of the student body. The other projects of this club vary from airplane building on one hand to experiments with colchicine—a chemical substance which is responsible for many mysterious effects on plant growths. Groups of students conduct the experimental demonstrations at each regular Friday meeting of the club. Thus, every member has an opportunity to participate. Priscilla Wolff, head of the science department, is sponsor of this club.

Clubs are invited to become affiliated with SCA for a nominal $2 for 20 members or less. You can become an associate of SCA for 25 cents. Address: Science Clubs of America, 1719 N St., N.W., Washington, D. C.

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GENERAL SCIENCE

Bureau of Standards Head Elected to National Academy

TWO men whose scientific efforts in peace-time have done much toward preparing the nation for its present all out war effort are among the 15 newly elected members of the National Academy of Sciences, chosen at the annual meeting of the Academy. They are Dr. Lyman J. Briggs, director of the National Bureau of Standards, and Dr. Thomas Midgley, Jr., of Worthington, Ohio, noted chemist who developed the now all but universally used tetra ethyl lead gasoline.

Election as Foreign Associate of the Academy, one of the highest honors in American science that can be conferred on a foreigner, went this year to only one person, a Chinese: Dr. Robert K. S. Lim of Pieping Union Medical College. (*See SNL,* May 23)

Chemists predominate among newly elected members, constituting more than a third of the total number. The new members are: Dr. Homer B. Adkins, University of Wisconsin, chemistry; Dr. Lyman J. Briggs, National Bureau of Standards, physics; Dr. H. T. Clarke, Columbia University, chemistry; Dr. Ralph E. Cleland, Indiana University, botany; Dr. Charles H. Danforth, Stanford University, anatomy; Dr. C. A. Elvehjem, University of Wisconsin, agricultural chemistry; Dr. Michael Heidelberger, Columbia University, chemistry; Dr. John G. Kirkwood, Cornell University, physical chemistry; Dr. Paul D. Merica, New York City, metallurgy; Dr. Thomas Midgley, Jr., Worthington, Ohio, chemistry; Dr. Francis D. Murnaghan, the Johns Hopkins University, mathematics; Dr. John Torrence Tate, University of Minnesota, physics; Dr. Alfred M. Tozzer, Harvard University, anthropology; Dr. Ernest E. Tyzzer, Harvard Medical School, pathology; Dr. Selman A. Waksman, New Jersey Agricultural Experiment Station, agricultural microbiology.

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WYOMING

Fish in its mountain streams. Ride horseback thru its hills and canyons. Find Indian relics and marine fossils in this region of great historical and geologic interest.

The Patons welcome a limited number of guests at their ranch home in the Big Horn country. Cabins are comfortable, food good and horses gentle.

Write for illustrated folder with map

Paton Ranch, Shell, Wyoming

•First Glances at New Books

ARCHAEOLOGY—TRAVEL

NO LIMITS BUT THE SKY, The Journal of an Archaeologist's Wife in Peru — Mary B. Kidder—*Harvard Univ. Press,* 233 p., illus., $3. The travel diary of a scientist's wife, who took with her not only an understanding of her husband's business but a keen eye for the wonders and beauties of the strange lands she traversed, and a sympathetic mind for the peoples who inhabit them. The illustrations are superb.

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ENGINEERING

WARTIME BUILDING CONSTRUCTION — *Chemical Publishing Co.,* 151 p., illus., $4. A British work reprinted here to acquaint American builders with the results of British wartime experience.

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PHYSICS

MATTER, ENERGY AND RADIATION—J. R. Dunning and H. C. Paxton—*McGraw-Hill,* 668 p., illus., $3.50. First of a series of four texts prepared for a two-year course in natural science at Columbia University, this volume is designed to give a well-rounded picture of the science of physics without going into those details that would not be interesting or useful to the general student.

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PSYCHOLOGY

SELF-ANALYSIS—Karen Horney—*Norton,* 309 p., $3. See page 347.

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PSYCHOLOGY

PREDICTING THE CHILD'S DEVELOPMENT — Walter F. Dearborn, John W. M. Rothney and others—*Sci-Art Publishers,* 359 p., $4.50. "The Harvard Growth Study" is the name which has been applied to the investigation forming the factual basis of this volume. Data collected over a long period of years by many collaborators is here published and summarized, for educators.

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GEOGRAPHY—NATURAL HISTORY

GUIDE TO PATHS IN THE BLUE RIDGE (3d ed.)—*Potomac Appalachian Trail Club,* 865 p., maps, accompanying transparent map case, $3.50. As motoring becomes less and less possible, holidays afoot on the picturesque and not-too-difficult trails of the Appalachians will doubtless attract increasing numbers of people. Issuance of this new edition of the excellently planned and edited Guide is therefore especially timely. In addition to the specific, measured data on the trails, there is much information on living in the open that will be found helpful anywhere.

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AGRICULTURE

SOYBEANS, Gold From the Soil — Edward Jerome Dies—*Macmillan,* 122 p., $1.75. A popular presentation of the really dramatic history of the soybean's rise as a major crop in the United States, and especially in the Corn Belt. There is a good bibliography.

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• Just Off the Press •

THE BOYLSTON STREET FISHWEIR—Frederick Johnson and others—*Robert S. Peabody Foundation for Archaeology, Phillips Academy, Andover, Mass.,* 212 p., illus., $2.

CHEMISTRY AND PHYSIOLOGY OF THE VITAMINS—H. R. Rosenberg—*Interscience Publishers,* 674 p., $12.

DRILL PRESS, Job Training Units—*American Technical Soc.,* 103 p., $1.25.

THE FACE OF SOUTH AMERICA, An Aerial Traverse—John Lyon Rich—*American Geographical Society,* 299 p., illus., $4.

FLYING SQUADRONS, A Graphic History of the U. S. Army Air Forces—S. Paul Johnston—*Duell, Sloan and Pearce,* 234 p., illus., $3.50.

HOW TO READ ELECTRICAL BLUEPRINTS—Gilbert M. Heine and Carl H. Dunlap—*American Technical Society,* 318 p., illus., 9 blueprints, $3.

AN INTRODUCTION TO HUMAN PHYSIOLOGY (3d ed.)—Lathan A. Crandall, Jr.—*Saunders,* 388 p., illus., $2.25.

MEASUREMENT OF EVAPORATION FROM LAND AND WATER SURFACES—C. W. Thornthwaite and Benjamin Holzman—*Govt. Print. Off.,* 143 p., 20c. (U. S. Dept. of Agric. Tech. Bull. No. 817.)

MILLING MACHINE, Job Training Units—*American Technical Society,* 110 p., $1.25.

THE MINNESOTA MULTIPHASIC PERSONALITY SCHEDULE—Starke R. Hathaway and J. Charnley McKinley—*Univ. of Minn. Press,* Test unit of 550 cards, manual, 50 record-and-profile sheets, and 7 scoring transparents, $15.

MODERN BREAD FROM THE VIEWPOINT OF NUTRITION—Henry C. Sherman and Constance S. Pearson—*Macmillan,* 118 p., $1.75.

OUT OF DOORS IN SPRING—C. J. Hylander—*Macmillan,* 143 p., illus., $1.50.

PLANT BIOLOGY—Paul Weatherwax—*Saunders,* 455 p., illus., $3.25.

THE PROGRESS OF SCIENCE, A Review of 1941—H. Horton Sheldon and S. Edgar Farquhar, eds.—*Grolier Society,* 404 p., illus., $2.95.

SHAPER AND PLANER, Job Training Units—*American Technical Society,* 115 p., illus., $1.25.

WAR PLANES OF THE AXIS—David C. Cooke—*McBride,* 256 p., illus., $2.75.

HORTICULTURE—MILITARY SCIENCE

CAMOUFLAGE WITH PLANTING — Ralph Rodney Root—*Ralph Fletcher Seymour, Chicago,* 79 p., illus., $1.50. If the world is to remain the uneasy planet it has been for the past quarter-century, haunted always with the menace of bombing raids, tree and shrub plantings will take on a new significance: they will be set out for concealment as well as for shade and beautification. This book makes a beginning of what might be called home-defense military landscape architecture.

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HORTICULTURE

A REPORT ON EXPERIMENTS WITH COLCHICINE—O. J. Eigsti and Barbara Tenney—*Univ. of Oklahoma Press,* 32 p., illus., 35c. A report on the interesting experiment undertaken at the University of Oklahoma, in which the cooperation of hundreds of amateur plant experimenters all over the country and even overseas, was enlisted. (See *SNL,* Feb. 14, p. 106).

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GEOLOGY

SOURCE BEDS OF PETROLEUM—Parker D. Trask and H. Whitman Patnode—*American Association of Petroleum Geologists,* 566 p., $4.50. A reference book for oil geologists and oil producers, giving detailed data on geology, depth, and physical and chemical properties of oil-bearing strata, location by location. A 112-page list of wells, with individual data, forms a useful appendix.

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GEOGRAPHY—HISTORY

LATIN AMERICA—Preston E. James—*Odyssey Press,* 908 p., illus., $4.50. Country by country, our neighbors to the south are described and their history briefly reviewed. This book will give the time-pressed reader at least an outline of the knowledge we all should have of our Spanish- and Portuguese-speaking fellow-trustees of a hemisphere.

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ETHNOLOGY

SUN CHIEF, The Autobiography of a Hopi Indian—Leo W. Simmons, ed.—*Yale Univ. Press,* 460 p., $4.25. The self-told story of an Indian who for ten years tried the white man's way, didn't like it, and returned to the life of his tribe. An interesting and valuable document.

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